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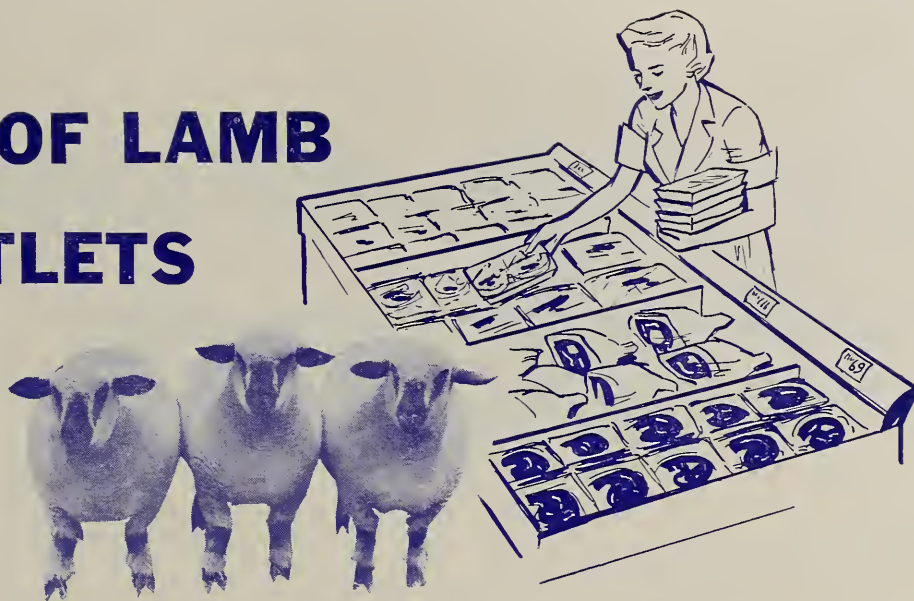
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AVAILABILITY OF LAMB IN RETAIL OUTLETS

by HARRY O. DOTY, JR.



WHEN THE American housewife goes shopping for a leg of lamb, the odds are almost two to one that she won't find it on her local meat counter. However, if she happens to live in a big city in the Northeast—and buys her meat in a large grocery store or butcher shop—she'll probably be able to buy lamb any time she wants it.

That's what Agricultural Marketing Service economists discovered when they surveyed retail food stores selling fresh red meats to find out who was stocking lamb and where and in what form.

According to the study, lamb producers and sellers are barely touching their potential markets. Selling patterns for lamb—and presumably eating habits—break sharply between city and country, regions of the nation, and size and type of store.

This can be seen in the small percentage of retail stores that handle lamb in their fresh red meat departments. Only 39 percent of these outlets stocked lamb cuts. But the figure varied from region to region. Some 73 percent of these stores in the Northeast handled lamb, while in the West 54 percent sold lamb. About 33 percent of the North Central stores carried lamb; and in the South, only 17 percent.

And the bigger the city, the more lamb available. Some 66 percent of

all retail stores that sold red meat carried lamb in the big cities across the country. As the size of the city dropped, so did the percentage of stores selling lamb. Lamb was sold in 44 percent of the stores in medium-size cities but in small towns and in the country the proportion was only 19 percent.

Butcher shops were much more apt to carry lamb than any other type of store, since their stock in trade is variety of kind and cut.

And chain stores lead independents in the percentage of stores selling lamb: 90 percent of the chains and 35 percent of the independents.

The size of the store was as important to the sale of lamb as was the size of the city or the region. Only 23 percent of stores with an annual gross of \$50,000 or less sold lamb. As dollar volume went up, the percentage of stores selling lamb also went up. Of those having a sales volume of \$50,000 to \$100,000, 38 percent sold lamb; in the \$100,000-\$500,000 bracket it was 60 percent; and over \$500,000, more than 90 percent.

When a store did carry lamb, it usually stocked it as a year-round item; 88 percent sold lamb all year. However, lamb seemed to hit a peak of availability in the last three months of the year, while its slack period came in the summer—in June, July, and August.

Interestingly enough, lamb also underwent a change in its availability pattern throughout the week. About three-fourths of the stores handling lamb sold it all week long. But as the week progressed, from Monday through Saturday, more and more stores made the product available.

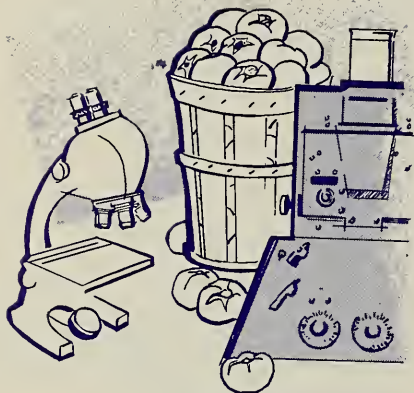
Unfortunately, when the housewife goes shopping for lamb, she has only a few cuts in mind—the leg, loin, rack, or chops cut from these parts. Over half the stores reported some difficulty in getting rid of less popular cuts, particularly breast, flank, or neck.

More than half of the stores selling lamb sold part of the less desirable cuts as stew meat, patties, scraps, or dog food. A much higher proportion of the large stores merchandised these cuts as stew meat and patties than did the small stores.

But no matter how the sales of lamb break down, the fact remains that lamb accounts for only 2 percent of the 33 billion pounds of meat consumed in this country.

Before lamb will be able to increase its share of meat sales, it must be made available at all times in more stores in more parts of the country. A redesigned distribution system, together with stepped up advertising and merchandising activities, could do much to make lamb more widely available and make consumers more lamb conscious.

The author is an agricultural economist in the Market Development Branch of AMS.



NOTES FROM THE LAB

Infestation in stored grain

Dermestid infestations in flat storage grain are rapidly becoming a serious problem in the hard red winter wheat section of the wheat belt, according to reports from the Stored-Grain Insects Laboratory at Manhattan, Kans.

Warehousemen find it hard to maintain a lethal concentration of heavier-than-air fumigants in the surface areas of the grain where the tiny dermestid larvae are found. In some cases, they have eliminated all other stored-grain insects in flat storage except the dermestids.

The dermestids involved here are not the khapra beetle but are closely related to it.

Reducing decay in peaches

Although hydrocooling is a very effective method of rapidly cooling peaches, ice water in itself has little or no effect as an inhibitor of brown rot or rhizopus rot fungus. It takes a chlorine or DOWICIDE A solution to do the trick.

This is the finding of T.T. McClure, associate pathologist in the Quality Maintenance and Improvement Section of AMS in Beltsville, Md.

McClure recently made a laboratory comparison of postharvest decay in inoculated peaches hydrocooled in solutions containing DOWICIDE A or chlorine and in plain ice water. He found that adding DOWICIDE A or chlorine significantly reduced decay.

Of the two, DOWICIDE A was the

best. Hydrocooling with 0.1 percent DOWICIDE A reduced brown rot 64 percent and rhizopus rot 17 percent. A solution containing 200 parts per million of chlorine cut brown rot 29 percent and rhizopus rot 4 percent.

The DOWICIDE A treatment followed by a refrigerated holding period (5 days at 40° F) worked even better. This combination reduced brown rot 91 percent below that of nonhydrocooled peaches ripened immediately. It cut rhizopus rot 47 percent.

Fabric insects

Clothes moths and carpet beetles have little respect for cedar chests and cedar-lined closets, according to a study by the AMS Laboratory at Savannah, Ga.

Tests show the repellency produced by cedar oil or vapors is not enough to prevent fabric insects from entering cedar chests and closets nor will it prevent stored woolens from becoming infested.

However, there does seem to be some relationship between the density of the vapors and the amount of protection. The tighter cedar chests proved considerably more effective than cedar-lined closets.

Perishables by air

Air transportation specialists have long felt that speed in transporting perishables was a substitute for refrigeration. A recent study by J.M. Harvey of the Fresno Quality Maintenance Laboratory has proved this isn't true.

In 24 hours, a simulated test shipment of precooled strawberries developed 30 percent decay at 70° F, 15 percent at 55°, 10 percent at 45°, and 7 percent at 34°. This indicates that temperature is extremely important even for the first 24 hours after harvest.

Although some planes have refrigerated cargo compartments, these are open when the plane is on the ground during stopovers. Exposure to 70° air for 20 minutes will raise the temperature of a 12-pint crate of strawberries from 32° to 40°. To prevent this warmup, Dr. Harvey recommends use of insulated blankets as load covers.

Liners for stored apples

Sealed polyethylene liners can do much to prevent scald and decay in stored Watsonville Newton apples.

At the Fresno, Calif., Quality Maintenance Laboratory, apples sealed in poly-coated kraft bin liners or pallet load covers came out of a 9-month, 40° storage period in excellent shape. Check lots held under the same conditions were substantially inferior in every respect.

Further storage tests are being conducted for other varieties of apples. Liners are also being tested for Gravensteins stored for processing.

Insects in elevators

Late summer and fall are the times to watch out for insects in concrete and wooden line elevators. These are the seasons when insect populations reach their peak, according to specialists at the USDA Stored-Grain Insects Laboratory at Manhattan, Kans.

A similar rise and fall in insect populations was previously observed in farm-stored grain.

For both concrete and wooden elevators, the most abundant species are the saw-toothed grain beetle and the flat grain beetle. In all cases many more beetles and much greater damage were found in wooden line elevator bins than in the concrete silo-type bins.

CONCENTRATED WHOLE MILK IS A QUALIFIED CHALLENGE

by ANTHONY G. MATHIS

AMS economists say it will take a 2-cent-a-quart or more saving to get a substantial proportion of housewives to switch to concentrates.

THERE SEEMS to be little doubt that new forms of concentrated whole milk soon will be finding their place on the retail shelf. But just how big a share they will take of the fresh fluid milk market will depend on how much money they can save the consumer.

Agricultural economists in the Dairy Section of the Market Organization and Costs Branch, AMS, figure it'll take a 2-cent-a-quart or more saving to get a substantial proportion of housewives to switch to concentrates.

Several forms of concentrated whole milk are in the offing. Refrigerated concentrates already have been sold in some markets. Other forms—frozen, sterile, and instant powdered whole milk—are still in the developmental stage.

The refrigerated, frozen, and sterile products are liquids. The frozen form, of course, requires refrigeration and needs to be thawed before using. The sterile concentrate is canned for sale from the grocery shelf. The new instant dry whole milk will differ from regular powdered whole milk in the ease with which it can be reconstituted and its ability to retain fresh milk flavor.

In the eyes of the consumer, the advantages and disadvantages of the

new concentrated products about balance one another. On the favorable side, concentrates take up less space in the refrigerator or need no refrigeration at all. However, real or imagined differences in flavor, plus the bother of having to reconstitute concentrated forms, cancel out storage advantages.

In the end, the factor that seems to decide whether a consumer buys a concentrated product or not is its price. Market surveys, consumer preference tests, and past experience with the refrigerated concentrate indicate that if it offers a savings of several cents a quart, the shopper may buy it. Otherwise, she won't.

Before processors can look forward to any sizable market for concentrated milks, they will have to keep their prices below those for fresh milk. Savings probably will come from large-scale processing operations and less frequent deliveries. If distribution costs for the concentrates could be lowered, their price might drop as much as 6 to 11 cents a quart below the price for fluid milk in some markets.

Such a price shift could set off a chain reaction in competition. Whole milk distributors might turn to greater use of gallon containers for retail sales and other discount practices to counteract inroads by the concentrates. Competitive practices like these might slow up the accept-

ance of concentrated milk by offering the consumer alternate ways to cut milk costs.

While consumers would benefit from such lower prices, producers supplying milk for local fluid milk markets could expect competition from low-cost areas outside the usual supply sources. The low cost of transporting concentrated milks makes it possible for these areas to widen their markets and could bring about lower prices for local milk.

If milk concentrates do become an important part of the milk industry, processing and distributing probably will be handled by existing firms. The dairy plants now in operation already have facilities for receiving and handling milk. They could readily add equipment for the new processes, and their present delivery routes could be tailored to the new products. Furthermore, new plants would find it hard and costly to obtain enough farm milk to initiate the large-scale production necessary to make concentrates a profitable enterprise.

But savings in marketing will have to be passed along to the consumer before the industry can look forward to any appreciable demand for milk concentrates. With a 3-cent-a-quart saving, consumer demand didn't get beyond 25 percent of total milk sales in a group of California stores where concentrated milk was sold over a period of several years.

Anthony G. Mathis is an agricultural economist, Dairy Section, Market Organization and Costs Branch of AMS.

AMS researchers find from a survey of cottonseed oil mills that the key to savings in labor and power lies in better use of both workers and facilities.

POWER and LABOR COSTS

by JULIA A. MITCHELL and C. B. GILLILAND

COTTONSEED oil mill operators should take a good look at their labor and power costs. Chances are they're spending too much money per unit for one or both of these elements.

Since labor and power account for about a third of the processing costs, any appreciable saving in this area will make a big difference to the processor.

In a recent survey of 123 cottonseed oil mills, AMS market researchers concluded that the key to savings in labor and power lies in better use of both workers and facilities. This is especially important because often plants are operating at much less than capacity.

The use of labor and facilities varied widely in the plants surveyed. Labor costs ran from \$1.29 to \$8.14 per ton of seed processed; the cost of power and fuel ranged from \$0.82 to \$2.95 per ton.

These findings applied equally to mills using hydraulic, screw-press, or solvent-extraction systems. Plants operating on electricity and steam showed similar variations, but steam-operated plants maintained lower per-unit costs for power and fuel alone when compared with other mills in the same area.

For all types of mills, the larger plants generally had the competitive advantage. In addition to the usual benefits gained from large-scale production, these plants were often in a

better position to buy seed. They could raise their bids and thus get a larger share of the limited seed supply of recent years.

This competitive advantage can be seen in the amount of crush produced during the 1954-55 season. Although mills of all sizes saw a decrease in production, output went down less in the larger plants. Mills with a capacity to crush 100 tons a day or more showed an 11-percent drop between 1953-54 and 1954-55, while those with a capacity of 100 tons or less dropped 25 percent.

The same pattern followed for the three different methods of extraction. For hydraulic process mills, when crush ranged from 50 to 250 tons a day, labor dipped correspondingly from 5.6 to 2.6 man-hours a ton. Screw-press mills with an output of from 25 to 450 tons a day registered 4.1 to 1 man-hours per ton. Solvent-extraction mills that crushed from 160 to 475 tons a day averaged 2.6 to 2 man-hours a ton.

A more surprising finding in the survey was that many small plants not only had higher per-unit labor costs but also a bigger daily labor bill. For example, some screw-press mills with a total output of less than 100 tons totaled 450 man-hours for a typical working day. But, similar screw-press mills with a capacity of 200 to 250 tons a day used only 350 man-hours. And the same situation existed in hydraulic and solvent-extraction mills.

About one-third of the mills sur-

veyed used steam, and the smaller plants were about as badly off in the use of power as they were in labor, when compared with their larger competitors.

The range in power used was from 100 to 190 kilowatt-hours per ton of seed for screw-press mills, with larger plants using less power. For hydraulic and solvent mills, the range was 80 to 150 and 80 to 120, respectively.

Depending on local power and fuel rates, costs for electricity ranged from 0.5 to 2.1 cents per kilowatt-hour for a ton of seed and from 7 to 80 cents per million British thermal units for steam.

Steam was generally the cheaper form of power, but the greater amount of labor needed for steam-powered operations sometimes offset the difference and gave the cost advantage per unit to plants using electricity.

When the three processes were compared without regard to size of plant, the solvent system was clearly the cheapest. Labor and power, as well as maintenance and repair, for the three systems were \$5.46 per ton of seed for solvent-extraction, \$6.08 per ton of seed for screw-press, and \$7.02 for hydraulic mills.

When the value of residual oil in the meal is added to the cost figures, solvent-extraction confirms its position as the most efficient and cheapest method. The residual oil in meal per ton of seed was 10 pounds for solvent mills, 40 for screw-press, and 51 for hydraulic mills.

Julia A. Mitchell is an agricultural economist in the Special Crops Section, Market Organization and Costs Branch, AMS. C. B. Gilliland is Section Chief.



Women workers pick out defective fruit moving before them on wide, well-lighted sorting belt.



Weighing machine in modern plant deposits just the right weight of prunes in bulk pack cases.



Packinghouse employees check-weigh the filled cartons of prunes before wrappings are applied.

PRUNES SEEK LARGER MARKETS

by MARVIN W. WEBSTER

REMEMBER when prunes were sold loose from a bin and were used mostly as stewed prunes? Not so today.

In a bid for greater consumer acceptance—here at home and abroad—the prune has been modernized, its face lifted, its quality improved.

It comes in attractive packages, its character easily identified. It appears on radio and television, and in the public prints. It is valued in every consumer diet. Production this year is down some, but there are plenty of prunes for all.

Prunes nowadays come canned, in the form of juice, and pureed for baby food, as well as dried. All the newer products have won consumer favor. A decade or so ago, only 10,000 tons of dried prunes a year were being made into juice; today, the total is more than 40,000 tons or nearly a fourth of the annual crop. In whole prunes, some consumers prefer the prunes already stewed and canned, others appreciate the modern dried prune for its improved quality and ease in preparation.

These achievements of the prune

industry didn't just happen. They are the result of solid experimentation on products and packages, and of sales effort. By 1951, the industry had achieved a consolidated organization to promote the sale of dried prunes under a California State marketing order and to control the quality and volume marketed through a Federal marketing order under the Agricultural Marketing Agreement Act administered by the Agricultural Marketing Service.

Under the Federal order, all dried prunes marketed in domestic and export channels must meet minimum standards of quality. The industry now is implementing the quality standards by requiring that prunes in consumer packages be packed in accordance with designated size categories and the packages labeled accordingly.

Under the State order, the industry is carrying out a substantial research and promotion program. This has been done for several years but the present program is by far the most intensive and extensive.

The prune industry knows it is not enough to develop new items for the market. It knows that a good product may well fail because of poor presentation in market channels. Prunes,

in the grocery trade, are classed as an impulse item. Because of this, the industry's promotional effort is geared to induce more housewives to include prunes in family diets.

This promotion employs consumer advertising through radio, television, and magazines, and point-of-purchase material for use in retail stores. Also, wholesale, supermarket, and chain-store buyers are contacted by special industry representatives.

Long-term research and development are important aids to the marketing program. In conjunction with other segments of the dried fruit industry, the prune industry is participating in the establishment of an overall research program which is to be carried out at the University of California and the USDA.

Here, trays of freshly harvested prunes stand ready for drying in dehydration tunnels in the background. Drying requires less than 24 hours.



The author is a marketing specialist in the Fruit and Vegetable Division, AMS.

THE CHANGING MARKET FOR VEGETABLES

by ALDEN C. MANCHESTER and JOSEPH C. PODANY

Marketing agencies and producers are making adjustments to meet changing patterns in consumer preferences for frozen, fresh, and canned vegetables.

WHETHER the average American realizes it or not, he's changing his eating habits—particularly when it comes to vegetables. He's not eating the same quantities of the same vegetables he did 10 or 15 years ago. Nor is he purchasing them in the same form.

He's selecting more frozen vegetables, and he's perking up his menus with a greater variety of vegetables.

Home gardening is less popular now than before World War II, so consumers depend much more on commercially produced and marketed supplies of vegetables.

To keep pace with these changing habits of the consumer, the production and marketing of fresh, frozen, and canned vegetables is also changing. Marketing agencies, as well as producers, are adjusting to meet current demands.

As consumer preferences shift from one vegetable to another, or from fresh to canned to frozen (or whichever way it may go), so too shifts the market.

According to specialists in the Market Organization and Costs Branch of AMS, who recently compared 1939-41 statistics with those of 1953-55, the most dynamic change in production and marketing has come from the several-fold increase in frozen vegetable consumption.

Since 1939, consumption of frozen and canned vegetables has increased at the expense of fresh vegetables. Frozen vegetables accounted for 7

percent of the market in 1953-55 compared with only 1 percent in 1939-41. Canned vegetables increased from 34 to 40 percent during the same period; fresh declined from 65 to 53 percent.

A large part of the increased consumption of canned vegetables was in tomato products such as catsup, sauce, puree and juice, and in pickles.

At the same time, the consumption pattern of the various vegetables has been changing. AMS researchers checked 22 vegetables to see how the popularity of each rated. Again, 1939-41 data were compared with 1953-55 statistics.

On a per person basis, more tomatoes, corn, lettuce, cucumbers, lima beans, garlic, and broccoli are being consumed than previously. Consumption of these 7 vegetables has increased from 26 to 72 percent.

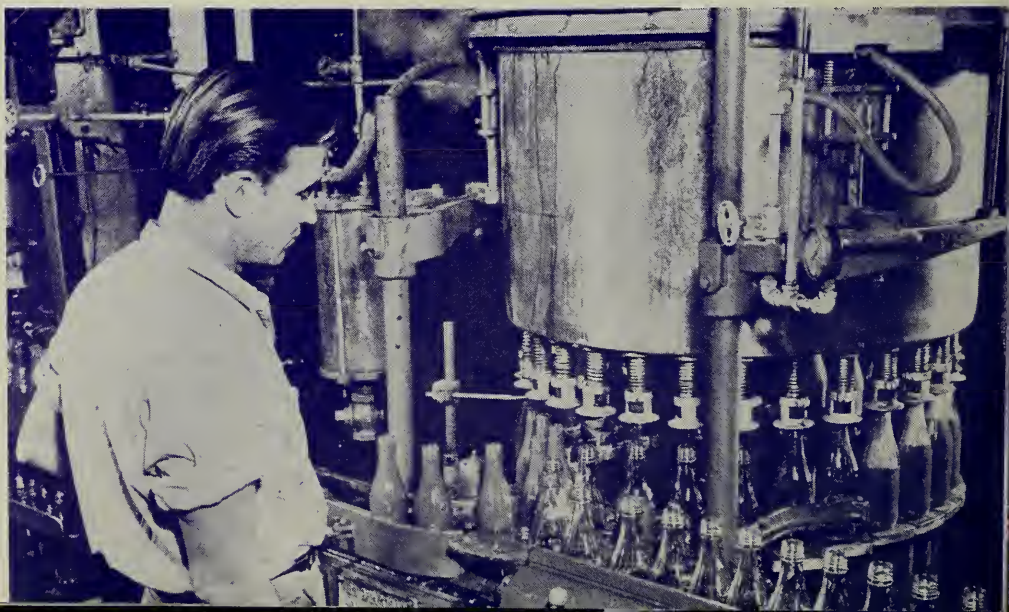
Also rapidly gaining popular favor are carrots and Brussels sprouts, with an increased consumption of 7 to 16 percent.

But while people are eating more of these vegetables, they are eating less of other vegetables. Asparagus, artichokes, spinach, cauliflower, egg plant, onions, and cabbage dropped from 10 to 26 percent. Six others—beets, snap beans, peppers, peas, celery, and kale—pretty much held their own. Their consumption changed only 5 percent or less.

A quick comparison of frozen, fresh, and canned products shows that there's also been a change in the form in which certain vegetables are being bought. Frozen products are replacing a portion of the fresh market for Brussels sprouts, broccoli, cauliflower, snap beans, asparagus, and lima beans. They are also taking a slice of both the canned and fresh markets for spinach and peas.

But whatever the form in which it is sold, corn seems to be increasingly popular. Its per capita consumption is up in all three forms—frozen, fresh, and canned. Cabbage, on the other hand, isn't doing so well. Cab-

CATSUP AND OTHER TOMATO PRODUCTS HELPED INCREASE CANNED CONSUMPTION.



The authors are agricultural economists in the Horticultural Crops Section, AMS.

bage consumption has decreased in all forms.

For all vegetables, total commercial production increased 32 percent between 1939-41 and 1953-55. Production for processing rose 50 percent, while production for the fresh market increased 25 percent.

During this same period, there was a pronounced shift in the location of vegetable production. California became an important supplier both of the fresh market and of processors, particularly freezers. And the West's share of U.S. production rose from 26 to 37 percent.

Two other widely separated States showed sharp increases in vegetable production. Florida, producing mostly for the fresh market, more than doubled its output. Wisconsin did almost as well, with much of its production going to canners.

Along with this overall shift in production have come significant shifts in the supply areas for the various vegetables. Take sweet corn, for example. Fresh corn is now available on a year-round basis rather than only during local marketing seasons. This is possible because of increased production in Florida during the winter months. Since World War II, Florida has increased its corn production several-fold.

Meanwhile, the major producers of sweet corn for processing have continued strong in Minnesota, Illinois, and Wisconsin. Over two-thirds of all sweet corn appears in processed form.

For all three categories—fresh, frozen, and canned—sweet corn consumption has increased between 1939-41 and 1953-55. Fresh consumption rose 46 percent; canned went up 16 percent; and frozen zoomed over 900 percent. To meet this demand, total production of sweet corn in this country increased 67 percent.

Tomatoes are another vegetable whose production areas and consumption patterns are changing. California has tripled its tomato production since the war, now accounting for 40 percent of the national output. Sub-



FROZEN PEAS HAVE TAKEN OVER MUCH OF THE FRESH MARKET AND SOME OF THE CANNED.

stantial increases have also occurred in Texas and Florida.

Production for processing has increased about three times as much as production for the fresh market, which hasn't seemed to change in recent years. The biggest change has been in the many forms of canned tomatoes. Although consumption of canned whole tomatoes has declined about one-fourth, most other canned items are up. Tomato juice consumption has risen 68 percent; catsup and chili sauce, 18 percent; and pulp, puree, and sauce consumption, 159 percent—largely due to the increased popularity of Italian-style dishes such as pizza and spaghetti.

Peas provide another good example of how a shift in consumption (from fresh to frozen) can bring about a corresponding shift in production. States such as California, Colorado, Idaho, and New York, which were

producing chiefly for the fresh market during the prewar period, have either sharply decreased production or have shifted to production for processing.

All States producing for the fresh market have declined from 60 to 90 percent. Only 9 of the 19 principal States decreased their production for processing.

The tremendous popularity of frozen peas accounts for much of this shift. The frozen product has taken over much of the fresh market and even some of the canned. Between 1939-41 and 1953-55, consumption of fresh peas dropped from 18 to 3 percent; canned went from 76 to 66 percent. At the same time, frozen pea consumption rose from 6 to 31 percent. Most of this was in packaged frozen peas, but a lot of frozen peas also go into prepared dishes such as pot pies and frozen dinners.

USE OF SOYBEAN AND COTTONSEED OIL IN

MARGARINE AND SHORTENING

By VIRGINIA FARNWORTH and DONALD JACKSON

SOYBEANS, a crop of little importance 25 years ago, have swept ahead of their nearest rival to capture about 65 percent of the total margarine market and 47 percent of the shortening market. The figures for cottonseed, next in importance, are 30 percent each for margarine and shortening production.

Fats and oils make up about 80 percent of the content of margarine and almost all of shortening.

The new picture of the oilseed market came to light as part of a recent study of cost and margins for cottonseed and soybeans used in shortening and margarine. The study, conducted by researchers in the Agricultural Marketing Service, dealt with the consuming centers of Atlanta, Chicago, Los Angeles, and New York.

New techniques to increase yield in oil extraction, the lifting of Federal and State taxes, as well as State restrictions on production and sale of yellow margarine and inadequate supplies of cottonseed oil, have helped to push soybean production.

The big break for soybeans came in the early 1950's. Even as late as 1940 total production of crude oil from soybeans was only 564 million pounds. But in 1955, only 15 years later, production had multiplied 6 times—hitting 3 billion pounds. In the same period, production of crude oil from cottonseed increased by about 25 percent, going from 1.4 bil-

lion pounds to nearly 1.8 billion.

Although prices have been falling since the peak periods of 1945 and 1951, the farmer's share of the consumer dollar is still higher than before the war. In 1940 the farmer's share for soybean and cottonseed oils was 19 percent. In 1945 it was 37 percent and in 1950 it was 40 percent. In 1955 the farmer's share was back to 26 percent.

The soybean farmers' returns from margarine amounted to roughly \$75,000,000 in 1955; in the same year the returns from shortening added up to \$95,000,000. The cottonseed producer received \$21,000,000 and \$33,000,000, respectively, from the same two products.

According to market researchers, soybeans have benefited most from improved seed and cultural practices on the farm and from the introduction of chemical extraction in processing. However, both oilseeds are getting bigger yields and gross returns as a result of new processes.

But, as the researchers point out, though the two oilseeds compete for the same markets, they are not strictly comparable. The principal difference is that the cotton farmer is far more concerned with the higher returns for his fiber than he is for the relatively low-return seed.

Another important difference is the more complex milling operation for cottonseed, which must be "delinted" and hulled before the meat is processed.

Soybeans are usually sold by the farmer at the country elevator during harvest time, though soybeans are adaptable to fairly long periods of storage. This, despite the fact that farmers who stored their product for sale later in the season usually got higher prices for their crop.

Elevator rates for storage of soybeans were about 4.4 cents per bushel in 1950, compared with 6.9 cents in 1956, for 150 days of storage. Cottonseed, on the other hand, is usually sold to the processor directly after ginning without incurring storage costs.

Wage rates, which make up a part of the milling cost, jumped appreciably between 1940 and 1955. But the labor cost per unit for both oils dropped during the same period due to increased mechanization. Wage rates, fuel, and raw material are still higher for cottonseed than for soybeans.

Because of integration in the industry, the crude oil is sometimes refined and even turned into the finished product without having to travel from plant to plant. The result is lower transportation costs.

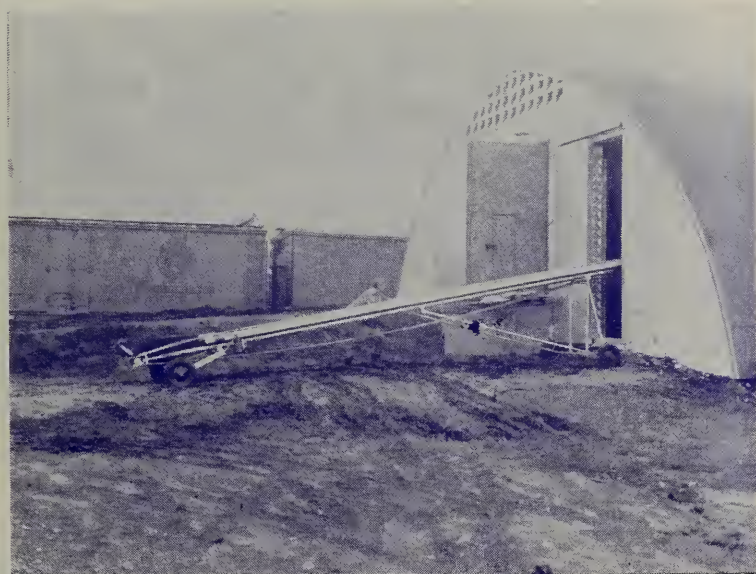
The current margin between crude and refined oil is 1 or 2 cents a pound. Shrinkage, a major part of the refining cost, can run as high as 0.6 cents a pound.

Packaging for the retail trade makes up the rest of the margin picture for margarine, with the type of package and machinery used adding most to the cost.

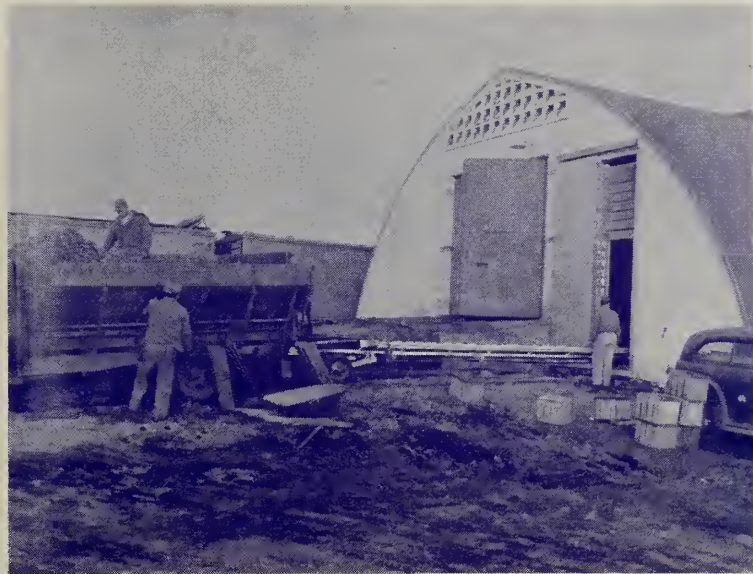
The production of shortening is a much less complicated process. Furthermore, liquid shortening is now being produced for bulk handling by commercial users, doing away with the need for containers. The liquid shortening is transported in tank cars direct to the plants.

Nevertheless, manufacturing costs for a pound of shortening are still higher than for margarine. The main reason is that shortening is practically all fats and oil, while margarine contains about 20 percent of less expensive ingredients.

The authors are agricultural economists in the Special Crops Section, Market Organization and Costs Branch of AMS.



Newly designed, lightweight conveyor, resting on detachable front wheels, is pushed into doorway cut in outer wall of deep bin storage.



Bulk truck moves into place at end of conveyor. Boards in doorway keep potatoes from resting against insulated door when storage is full.

NEW LIFE FOR OLD POTATO STORAGES

by RICHARD S. CLAYCOMB

ALIGHTWEIGHT, 40-foot troughed belt conveyor, developed at the Red River Valley Potato Research Center, East Grand Forks, Minn., can greatly aid in moving potatoes into deep bin storages.

In experiments at the AMS field station, the new conveyor overcame many of the difficulties encountered in the older type storages. It not only reduced handling damage but achieved cost and handling efficiencies comparable to the best methods used in up-to-date storages.

Millions of bushels of potatoes are stored annually in deep bins, and usually about 4 to 6 percent of these are damaged by bulk handling methods. Injuries are caused by the potatoes dropping from one conveyor to another and by sliding down 10 to 15 feet of canvas chute.

With the improved method, a storage can be filled from floor to ceiling with a single conveyor, and the potatoes never drop more than 6

inches onto the pile. Even with the conveyor sloped upward at a 20° angle, the potatoes do not roll back down the belt.

Chances of injury to the potatoes



Ceiling track and hoist support conveyor as it fills this 20-foot bin from floor to ceiling.

is further reduced by using a flexible hopper to close the gap between the unloading truck and the conveyor.

But before the new conveyor can be put to work, certain modifications are necessary. First, the storage bin itself must be altered. Partitions must be removed, and a 3-foot-wide doorway cut in an exterior wall of the storage to permit entrance of the conveyor. Then, to raise and lower the conveyor, barn track must be suspended from the rafters and an electric hoist installed.

The cost of this remodeling together with the cost of the 40-foot conveyor probably would come to no more than the cost to replace a rotted drive floor and bin partitions.

As a bonus, the potato warehouseman gets a reduced rate of damage and an increased rate of productivity.

In the Red River Valley tests, a 2-man crew and a truck driver easily stored 40 loads of 120 hundredweight each in a little less than 6½ hours of conveyor operating time. This averaged 9.7 minutes per load and compared favorably with the best methods found in up-to-date storages.

The author is an agricultural engineer at the Red River Valley Potato Research Center, East Grand Forks, Minn.



USDA DAIRY GRADES

- protection of a firm's brand name; and—

- promotion of consumer confidence, acceptance, and use of butter.

Butter grading is one of the services of the Dairy Division of the Agricultural Marketing Service. This agency also offers inspection and grading programs for Cheddar cheese, swiss cheese, process cheese, cottage cheese, dry whole milk, nonfat dry milk, dry buttermilk, dry whey, evaporated and sweetened condensed milk, sterilized whole milk, ice cream, butter oil, ghee, and other miscellaneous dairy products.

These services are designed to encourage standardization and improvement of quality in dairy products and to promote more orderly marketing. Buyers and sellers at distant locations, through the use of the grading service, can conduct transactions with confidence, relying on U. S. grade certificates as the basis for trading. The service is available on a nationwide basis, its use is voluntary, and it is supported by fees collected to cover cost of the operation.

Some 400 licensed graders—all State or Federal Government employees—provide grading and inspection services throughout the country.

They work under the supervision of five area offices, located in New York, Chicago, Minneapolis, Kansas City, and San Francisco, as well as the Washington office and a "chemist-in-charge" who is headquartered at the Dairy Division's Chicago Laboratory.

The Dairy Division carries out its inspection and grading programs under cooperative agreements with the States in accordance with conditions specified by "Regulations Governing the Grading, Inspection, Sampling, Grade Labeling, and Supervision of Packaging of Butter, Cheese and Other Manufactured or Processed Dairy Products." A copy of this publication (SRA-AMS 169) may be obtained from the Dairy Division upon request.

There are three major types of inspection and grading services: the product grading service (often called "fee" grading), under which wholesale lots are graded at terminal markets, shipping points, and dairy plants; the "resident grader" service, under which a grader is assigned full-time to one processing plant or receiving station; and the plant inspection service.

The plant inspection service, which is the newest of these programs, first

"Proof of the pudding is in the eating," so the old saying goes.

But, butter manufacturers, dealers, and consumers are apparently adopting the attitude that proof of the butter is the U. S. grade mark it carries.

Over the past 5 years there has been a significant increase in the amount of butter marketed in consumer cartons bearing the U. S. grade marks. Most of the nationally known chain grocery stores, as well as many milk distributing firms and independent food stores, are now selling Federally graded butter.

Why? These are the reasons most commonly advanced:

- uniformity and stability of graded butter; hence—

Harold E. Meister is Assistant Chief, Inspection and Grading Branch, Dairy Division, AMS.

Grading and inspection services are available on a voluntary, nationwide basis. More than 400 Federal and State graders provide these services.



ARE PROOF OF QUALITY

by HAROLD E. MEISTER

came into widespread use in 1952. It serves to aid the industry in locating deficiencies in plant operations. The inspector making a plant survey checks about 120 items concerning the plant's facilities and equipment, its sanitation, and its processing procedures. He also takes production line samples which are tested for bacteria count and serve to pinpoint any trouble spots in processing methods.

In the relatively short time that this service has been in full operation, dairy plant managers have found it an invaluable aid in establishing and maintaining good plant practices. At present, practically all dry milk plants and most of the cheese factories and creameries in this country are inspected under this program.

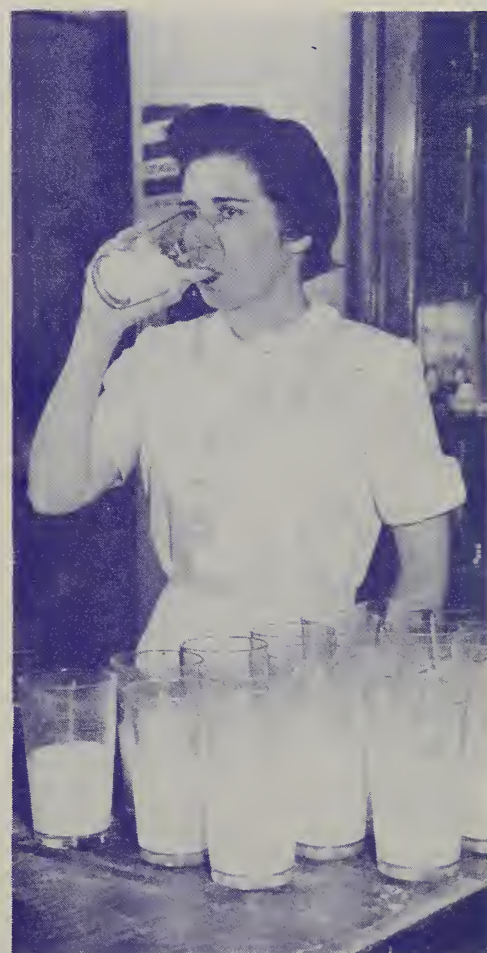
The "resident grader" program, used in dairy plants since about 1946, offers quality control assistance not otherwise readily available to many plants. The resident grader is qualified both for grading and laboratory work. In addition to grading the products and assisting the management in maintaining product quality, he keeps close check on the day-to-day operation of the plant, its equipment, and its sanitation.

The resident grader is of value to the plant not only because of his own technical services, but also because he has available all of the information and resources of the Agricultural Marketing Service. His services help management turn out the best possible product from the raw material available, and to build up and maintain a reputation for uniform and reliable quality.

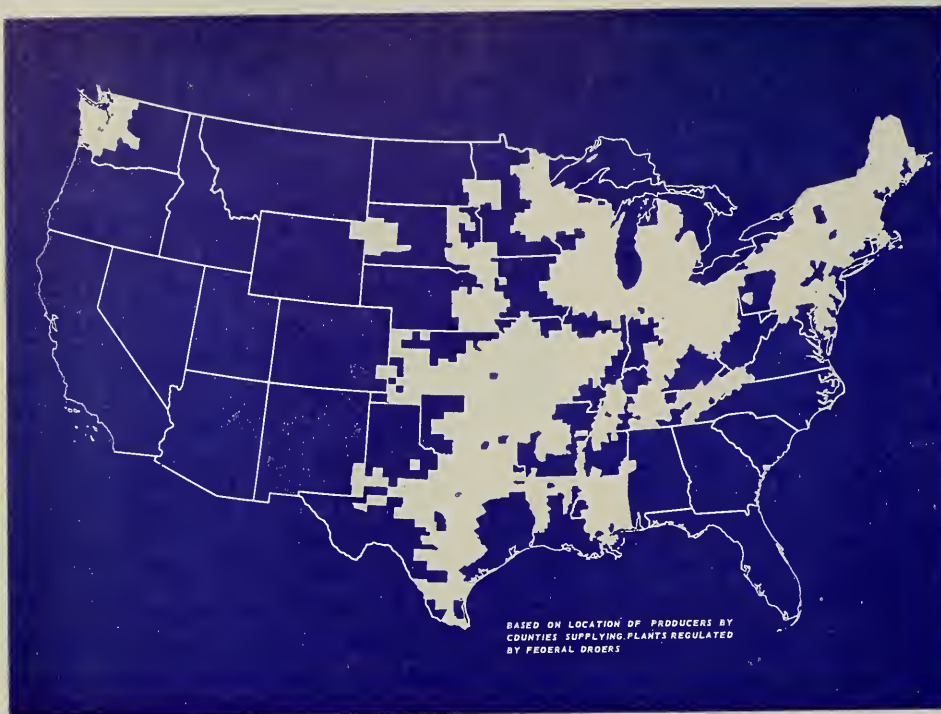
The great bulk of dairy product grading work now being done is known as "fee" grading. This is the examination of individual wholesale lots to determine quality. This service has been available to the dairy industry for nearly 35 years and its use is constantly increasing.

Any buyer or seller of dairy products may obtain "fee" grading service through the area offices of the Dairy Division or its Washington office. Applications for resident grader service or for plant inspection may be made through these offices also.

The fact that more and more manufacturers and dealers are using these services is evident when you consider that the volume of dairy products graded has increased from a total of 683.5 million pounds in 1952 to more than 3 billion pounds in 1957.



USDA graders and chemists make variety of tests on dairy products. Above, a chemist checks samples of dry milk for palatability. Top left, USDA grader inspects and grades butter stocks. Center photo shows chemist checking samples of dry milk for solubility.



WHITE AREA SHOWS SOURCES OF MILK IN FEDERAL ORDER MARKETING AREAS, DECEMBER 1957.

EXPANSION OF FEDERAL MILK ORDERS

by HERBERT L. FOREST

DAIRY FARMERS selling milk in 68 marketing areas throughout the country now use the Federal milk marketing order plan. A decade ago, only 28 markets came under this program.

Today, Federal milk orders cover more than a third of all milk sold by farmers to plants and dealers. Farmers in the North Atlantic and Central regions of the country use this program most intensively. In the North Atlantic region, Federal milk orders price more than two-thirds of the milk sold; in the North Central region, 30 percent; and in the South Central region, 40 percent.

More than two-thirds of the milk sold by farmers in the State of Washington is priced by Federal milk orders, and close to 100 percent of the milk sold by farmers in Arizona is purchased by handlers required to

pay Federally established minimum prices.

Nearly 190,000 dairy farmers sell about 36 billion pounds of milk annually under Federal milk order programs.

Marketing areas in which minimum prices paid producers are regulated by Federal orders vary in size from the Eastern South Dakota market (a group of 4 cities) where sales average about 63,000 pounds a day to the huge New York-New Jersey milk marketing area where farmers each day market about 28,000,000 pounds of milk.

Federal milk orders establish a system of minimum prices paid by handlers which apply uniformly to all who purchase milk for sale in the regulated market. Minimum prices are determined on the basis of supply and demand conditions in the market, drawn from facts produced at a public hearing. Producers, handlers,

and consumers may appear at the hearing to present information about the milk market.

The Department of Agriculture examines the record of this public hearing and then determines the level of prices to be applied to the different uses of milk in the particular market.

Milk prices are established according to a classified system. Milk which is used by the distributor in his fluid sales is paid for at the Class I (the highest) price. Milk which he takes from producers in excess of his fluid sales and converts into manufactured products is paid for at a price which permits such reserves to be handled profitably. For example, milk for butter and cheese generally commands a lower price than milk for fluid sales.

Federal milk marketing orders are issued only for markets in which dairy farmers request the program. Before an order may be issued, it must be approved by at least two-thirds of the dairy farmers affected by the order.

A Federal milk order imposes no regulations on farmers. It regulates instead the handlers who buy milk from farmers.

Each milk order is administered by a market administrator, who is an agent of the Secretary of Agriculture.

The market administrator's principal duty is to be certain that handlers are accounting for their milk receipts and making payments to producers in accordance with the terms and provisions of the order. For this purpose, reports are required from the handlers. The market administrator's staff investigates the handler's business and audits his records to be sure that the full, required payments are made to producers.

Expansion of the Federal milk order program is expected to continue as requests for orders in additional areas are considered and as markets already regulated are expanded. Fluid milk markets have become larger in recent years as handlers have extended their sales routes over wider areas.

Herbert L. Forest is Director of the Dairy Division of AMS.

CHANGING PATTERNS IN LIVESTOCK MARKET NEWS

by A. B. SMEBY

How is today's market for slaughter steers? Are prices holding up well—or are they declining, with supplies running ahead of demand?

Being able to get timely and correct answers to these and similar questions is vitally important to producers and others in the livestock industry.

Today—and for the last 40 some years—these answers have been provided by the Livestock Division's Market News Branch of the Agricultural Marketing Service.

To be of real value to producers and the livestock industry, market news reports must reflect the constant changes in marketing practices.

During the early years of livestock market reporting, news came mostly from terminal markets where the bulk of livestock was being sold and where national price levels were largely established.

When an increasing proportion of the livestock, particularly hogs, began

to be purchased direct in important producing areas, the Federal livestock reporting service was extended to cover these areas. The first of the offices opened for reporting direct trading on hogs was at Des Moines, Iowa. Covering all of Iowa and southern Minnesota, this office now reports on sheep and lambs as well.

Some years later, a similar service was started at Thomasville, Ga., to report the direct trade on hogs and cattle in portions of Georgia, Alabama, and Florida. Early in 1956, an office was opened at Muncie, Ind., to report the direct trade on hogs in northern Indiana.

Several years ago, a weekly "Range Sales Report" was started to cover country transactions on cattle, sheep, lambs, and wool. Information for this report is gathered during the week by offices in California, Colorado, Utah, Montana, Oregon, Washington, Texas, and Arizona.

As West Coast markets in recent years gained increasing importance,

the Federal and some State market news services broadened and intensified their reporting in that area on livestock and wholesale meat trade prices, price trends, volume of trading, and other trade factors.

In an attempt to overcome some of the difficulties inherent in reporting on direct sales of livestock from the range and the feedlot, the Market News Branch, in cooperation with the Marketing Research Division, is now carrying out a research project aimed at finding the best way to obtain, analyze, and distribute this information. Various methods of getting and analyzing market news data are being tested in sections of the States of Colorado, Wyoming, Nebraska, Kansas, and New Mexico.

It is hoped that information developed in this research project will substantially aid the Livestock Market News Branch in its objective, providing complete, accurate, unbiased, and rapid news reports on demand, supply, and price in livestock trading throughout the country.

A. B. Smeby is Acting Chief, Market News Branch, Livestock Division, AMS.

Several years ago, the Livestock Division began a weekly "Range Sales Report" to cover country transactions on cattle, sheep, lamb, and wool.

During the early years of livestock market reporting, news came mostly from terminals. Here, the bulk of livestock was being sold.





This cheerful artwork appears on a fact sheet prepared especially for the foods service industry as a part of USDA's special Plentiful Foods Program on canned and frozen peas. Besides this one, USDA produced fact sheets on canned and frozen peas for the food distributive industry and for school lunch managers.

The fact sheets explain that USDA is supporting industry's "Peas on Parade" drive to move unusually large stocks of canned and frozen peas. But they go much farther—each of the fact sheets is tailored to the special methods of each of these groups and points out practical ways and means to merchandise these plentiful items.